Paul D. Frenzen

Rural Areas Gained Doctors During the 1980's

The nonmetro physician supply grew by 18 percent during the 1980's, increasing from 83 to 97 physicians per 100,000 persons. Despite the rapid increase, nonmetro areas continued to have less than half as many physicians as metro areas have. Nonmetro physicians were also unevenly distributed, preferring to locate in counties with larger urban populations that were not adjacent to metro areas. By 1988, these urbanized remote counties had become major centers of primary and specialized medical care.

The number of nonfederal physicians in the United States grew more rapidly than the population during the 1980's, increasing by 26 percent from 376,000 in 1981 to 472,000 in 1988. Metro and nonmetro areas both gained physicians, although physicians remained concentrated in urban centers. By 1988, the number of physicians per 100,000 persons had risen to 97 in nonmetro areas, in contrast to 224 in metro areas. The nonmetro physician supply grew most rapidly in counties with 20,000 or more urban residents that were not adjacent to metro areas. These urbanized remote counties have now become major centers of health care for rural residents.

Those findings are based on an examination of data on physicians assembled by the U.S. Department of Health and Human Services (see box, "About the Study"). Other key findings include:

- All categories of nonmetro counties gained physicians during the 1980's.
- The distribution of physicians remained uneven. Nonmetro physicians chose to locate in urbanized remote counties, which had three times as many physicians per capita as predominantly rural counties.
- More than half of the physicians in urbanized remote counties were specialists, but most of the physicians in rural counties were primary care practitioners.
- As the number of nonmetro physicians grew, the average number of physician visits per nonmetro resident also increased. By the late 1980's, nonmetro residents were contacting physicians almost as frequently as metro residents were.

Many Rural Residents Still Face Barriers to Health Care

The increase of physicians in nonmetro areas is important because many rural residents face geographic barriers to health care. The barriers are greatest in communities that lack health personnel since residents, particularly in isolated or sparsely populated areas, may have to travel considerable distances to obtain care. The difficulty and cost of travel in these areas are also high due to the limited availability of public transportation. In contrast, distance is not a major barrier to routine care for most urban residents. Urban centers have numerous health personnel, intracity travel times are relatively short, and public transportation is often readily available.

Many rural residents also face financial barriers to care since the poverty rate is higher in rural areas. The lower cost of rural physician and hospital services partly offsets lower incomes.

USDA photo

Rural areas benefited from improvements in health care during the 1980's. While still lagging behind urban areas in most indicators, the number of rural physicians rose, as did the average number of visits to physicians.

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Nevertheless, health care is a greater financial burden for rural residents. In 1989, rural households spent nearly 10 percent more on health care, on average, than did urban households, even though there was virtually no difference in average household size.

In addition, rural residents tend to have less comprehensive health insurance coverage than urban residents. There is little difference between urban and rural areas in the proportion of persons under age 65 lacking health insurance. (Virtually all persons aged 65 and older were covered by the Medicare program, regardless of place of residence.) However, the rural insured are less likely than the urban insured to have group coverage obtained through employment, and more likely to have private coverage purchased outside the workplace. Since coverage purchased outside the workplace typically costs more and provides fewer benefits than coverage obtained through employment, many of the rural insured had less adequate protection from physician and hospital bills.

The increase of physicians in nonmetro areas reduced the geographic barriers to health care in communities that gained physicians. However, many residents of communities with physicians continued to face significant financial barriers to care because they had low incomes or less comprehensive health insurance.

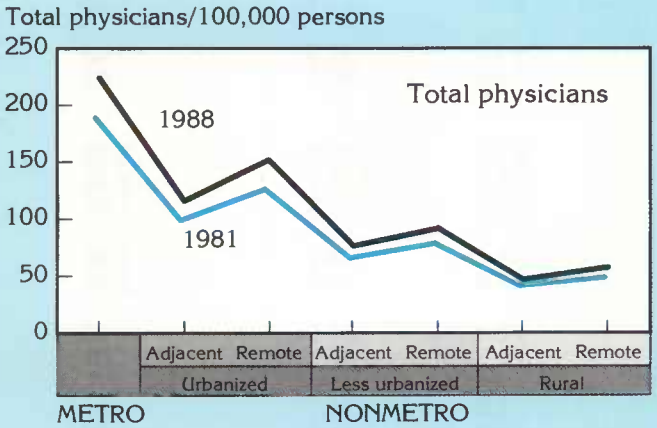
Government Programs, Market Forces Influence Distribution of Physicians

The uneven geographic distribution of physicians is partly due to the concentration of specialized medical research and treatment facilities in urban centers. Physicians also prefer urban locations for other reasons, including the personal ties developed during training in urban medical institutions and the opportunity to interact with a large number of professional colleagues. In addition, many physicians desire social and cultural amenities less commonly found in rural communities.

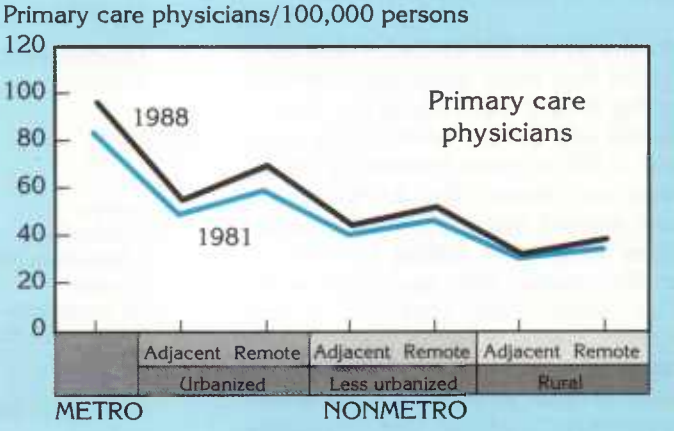
The uneven distribution of physicians has persisted despite efforts to place

Figure 1
Distribution of nonfederal physicians by county category

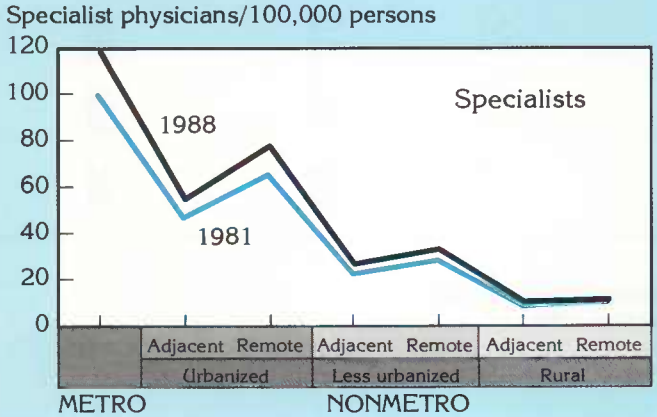
Nonmetro physicians preferred to locate in counties with larger urban populations that did not border on metro areas.



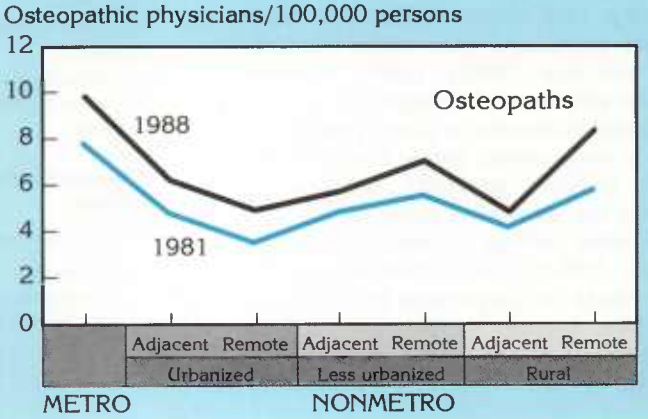
Nonmetro primary care physicians were more evenly distributed than all physicians.



Nonmetro specialists were concentrated in medical centers emerging in urbanized remote counties.



Unlike other physicians, osteopaths preferred to locate in rural remote counties.



more physicians in rural communities. The Federal Government first became concerned about the geographic distribution of physicians in the early 1970's and introduced several programs to increase the number in underserved areas. The most important measure was the National Health Service Corps (NHSC) scholarship program, which provided financial aid to medical students in exchange for service after graduation in designated Health Personnel Shortage Areas (HPSA's).

Federal efforts to increase the number of doctors in underserved areas were curtailed under President Reagan in the early 1980's, and the NHSC scholarship program was gradually reduced. The policy shift was influenced by a 1980 report by the Graduate Medical Education National Advisory Committee predicting that a physician surplus would develop by 1990. Some officials contended that market forces alone would attract more physicians to rural areas as competition intensified among urban physicians.

Studies by the RAND Corporation confirmed that more physicians were locating in rural areas during the 1970's. By the late 1970's, nearly every town with 2,500 or more inhabitants had at least one doctor. The RAND studies also showed that primary care physicians were more willing to settle in smaller places than specialists were. This pattern was attributed to the smaller market areas of primary care physicians, who outnumbered physicians in other specialties. The RAND researchers predicted that physicians would diffuse even more widely in rural areas as the physician supply continued to grow.

Despite the growth of the physician supply, rural areas continued to have fewer physicians than urban centers. By the late 1980's, public concern about physician shortages led to new Federal initiatives to place practitioners in underserved areas. These measures included an NHSC program to repay the education loans of medical graduates willing to serve in designated HPSA's, and Medicare bonus payments for physicians in nonmetro HPSA's. Funding for the NHSC scholarship program was also expanded in 1991.

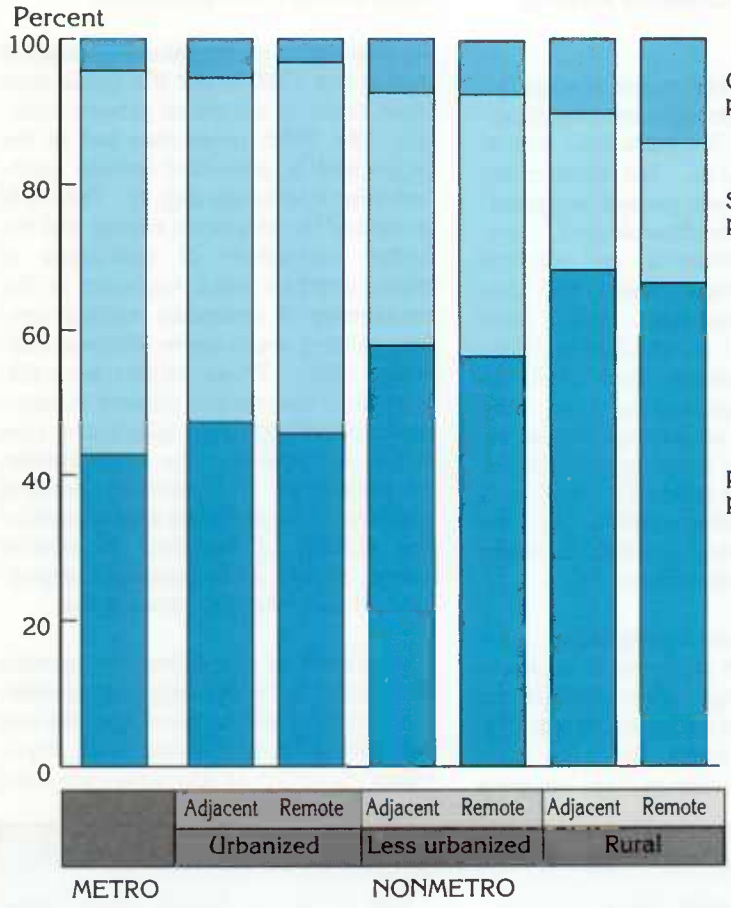
Table 1—Distribution of nonfederal physicians[1]

Physician and county category	Physician-population ratio		Mean annual change in physician-population ratio, 1981-88
	1981	1988	
	Nonfederal physicians per 100,000 persons		
All physicians:			
U.S. total	163.8	194.5	5.11
Metro	189.4	223.9	5.75
Nonmetro	82.6	97.3	2.45
Urbanized—			
Adjacent to MSA[2]	99.2	115.7	2.75
Remote	126.1	151.7	4.27
Less urbanized—			
Adjacent to MSA	65.7	76.4	1.78
Remote	78.2	91.8	2.27
Rural—			
Adjacent to MSA	40.7	46.8	1.02
Remote	47.7	57.5	1.64
Primary care:			
U.S. total	73.3	85.5	2.04
Metro	82.3	95.9	2.26
Nonmetro	44.4	51.3	1.14
Urbanized—			
Adjacent to MSA	47.9	54.8	1.14
Remote	57.8	69.3	1.92
Less urbanized—			
Adjacent to MSA	39.1	44.2	.86
Remote	45.0	51.8	1.13
Rural—			
Adjacent to MSA	29.0	31.9	.48
Remote	32.8	38.2	.91
Specialists:			
U.S. total	83.6	100.0	2.74
Metro	99.3	118.2	3.14
Nonmetro	33.4	39.9	1.07
Urbanized—			
Adjacent to MSA	46.6	54.7	1.36
Remote	64.9	77.5	2.10
Less urbanized—			
Adjacent to MSA	22.0	26.5	.76
Remote	27.7	32.9	.87
Rural—			
Adjacent to MSA	7.6	10.1	.41
Remote	9.3	11.0	.29
Osteopaths:[3]			
U.S. total	7.0	9.0	.33
Metro	7.7	9.8	.35
Nonmetro	4.7	6.2	.24
Urbanized—			
Adjacent to MSA	4.7	6.2	.25
Remote	3.4	4.9	.25
Less urbanized—			
Adjacent to MSA	4.7	5.7	.16
Remote	5.4	7.0	.27
Rural—			
Adjacent to MSA	4.0	4.8	.13
Remote	5.6	8.3	.44

[1]Excluding Alaska.
[2]MSA = Metropolitan Statistical Area (metro area).
[3]Osteopaths in 1987 rather than 1988.

Figure 2
Composition of the nonfederal physician supply, by physician type and county category

More than two-thirds of the physicians in rural counties were primary care practitioners, but a majority in urbanized remote counties were specialists.



The distribution of physicians is crucial because there are few alternative sources of health care in rural areas. Some communities that lack doctors are currently served by midlevel health practitioners (nurse practitioners, physician assistants, and certified nurse-midwives), who provide many of the same services as primary care physicians. However, midlevel practitioners are even less numerous in nonmetro areas than physicians. By the late 1980's, communities with fewer than 50,000 residents (including some in metro areas) had only about 8 midlevel practitioners per 100,000 persons.

Growth in Nonmetro Physician Supply Was Uneven

The total number of physicians per 100,000 persons in the United States rose from 164 in 1981 to 195 in 1988 (table 1). On average, communities gained about 5 physicians per 100,000 persons per year. Over this period, the physician-to-population ratio in nonmetro areas rose by 18 percent, from 83 to 97 per 100,000 persons, but remained less than half the metro ratio.

Every category of nonmetro county gained physicians during the 1980's (fig. 1). Since each area also experienced population growth, the increase in the physician supply was due to a more rapid rise in the number of physicians than inhabitants. The gains were greatest in urbanized remote counties, which became more prominent centers of health care, and least in rural counties, which remained the most poorly served areas of the country.

Nonmetro physicians clearly preferred to locate in areas with more urban residents. They also chose remote over adjacent counties among counties with the same approximate urban population. This pattern probably reflected the greater competition from metro physicians in counties bordering metro areas. Regardless of the reasons, the location preferences of nonmetro physicians resulted in an uneven distribution of the physician supply. By 1988, urbanized remote counties had three times as many physicians as rural adjacent counties.

The National Health Interview Survey

The National Health Interview Survey (NHIS) is a regular survey of the U.S. civilian noninstitutional population conducted by the National Center for Health Statistics since 1957. The annual sample currently includes about 50,000 households. The survey inquires about health status, disability, physician contacts, and hospital stays, using different reference periods to minimize recall bias. The questions about physician contacts refer to the 2 weeks prior to the interview. NHIS estimates must be interpreted cautiously since some respondents may provide less accurate reports than others. Data on trends are also difficult to interpret due to periodic revisions of the NHIS questionnaire, most recently in 1982.

Primary Care Physicians More Willing Than Specialists To Locate in Less Urbanized and Rural Counties

Separating the total number of physicians into three groups—primary care physicians, specialists, and osteopaths—allows one to examine the trends in more detail. Primary care physicians practice general/family medicine, pediatrics, obstetrics/gynecology, or internal medicine and account for more than two-fifths of all U.S. physicians. They provide basic medical and surgical care, referring patients for more specialized treatment when necessary.

The total number of primary care physicians grew from 168,000 in 1981 to 208,000 in 1988, an increase of 24 percent. During the same period, the U.S. ratio of primary care physicians

per 100,000 persons rose from 73 to 85, an average increase of 2 practitioners per 100,000 persons per year (table 1). The ratio also rose in nonmetro areas, but still remained about half the metro ratio.

All nonmetro areas gained primary care physicians during the 1980's, with the greatest gains occurring in urbanized remote counties. By 1988, these counties had more than twice as many primary care practitioners as rural counties did. Despite their preference for urbanized remote counties, primary care physicians were more evenly distributed in nonmetro areas than all physicians combined (fig. 1). This difference reflects a greater willingness among primary care practitioners than other physicians to settle in small places, as revealed by the RAND studies.

The more even distribution of primary care physicians affected the composition of the physician supply. By 1988, more than two-thirds of all physicians in rural counties were primary care physicians (fig. 2). Primary care physicians also represented a majority of the physicians in less urbanized counties. In contrast, they were outnumbered by specialists in urbanized remote counties and metro areas.

Specialists Were Concentrated in Urbanized Remote Counties Emerging as Nonmetro Medical Centers

Specialists provide more specialized services than primary care practitioners and account for more than half of all U.S. physicians. The most common specialists are general surgeons, radiologists, anesthesiologists, pathologists, psychiatrists, and medical and surgical subspecialists. The total number of specialists rose from 192,000 in 1981 to 243,000 in 1988, a 27-percent increase. As a result, the U.S. specialist-population ratio rose from 84 to 100, an average annual increase of nearly three specialists per 100,000 persons (table 1). Nonmetro areas also gained specialists, but continued to have only one-third as many specialists as metro areas.

Like primary care physicians, nonmetro specialists preferred to locate in counties with larger urban populations some distance from metro areas (fig. 1). However, specialists were even less willing to locate in rural counties and were more highly concentrated in urbanized remote counties. By 1988, urbanized remote counties had seven times as many specialists as rural counties, compared with only twice as many primary care physicians.

All nonmetro areas gained specialists during the 1980's, but the gains were most rapid in urbanized remote counties. By 1988, more than half of the physicians in urbanized remote counties were specialists (fig. 2). The rapid growth of the physician supply and the higher proportion of specialists in these counties were evidence of the emergence of nonmetro medical centers serving areas some distance from major cities. These centers were distinct from the medical centers in metro areas providing more specialized care for larger regions. The concentration of physicians in nonmetro medical centers may have been encouraged by the closing of hospitals in smaller towns, as well as the greater competition for patients near metro areas.

The impact of the increasing number of specialists on the supply of specialized medical and surgical services was not entirely clear. Although all physicians classified as specialists provided

About the Study

Information about the annual distribution of nonfederal patient care physicians and osteopaths by county was obtained from data sets assembled by the Office of Data Analysis and Management, U.S. Department of Health and Human Services. Federal practitioners were excluded from the study since most served special populations. Alaska was also excluded since Alaskan practitioners were not tabulated by county. The population of each county was obtained from intercensal estimates by the U.S. Bureau of the Census.

Primary care and specialist physicians were classified by specialty, according to their self-designated practice specialty, and by location, according to their preferred professional mailing address. Internal medicine subspecialists were classified as primary care physicians since they could not be distinguished from general internists before 1986. A small group of physicians who did not report a specialty were excluded.

Physicians and osteopaths in residency training were included in the study because residents provide a substantial amount of patient care. A small group of osteopaths engaged in administration, research, and teaching were also included since they could not be distinguished from patient care osteopaths after 1981. Information on whether physicians or osteopaths practiced in more than one county was not available.

Nonmetro counties were classified into six categories using a typology developed by the Economic Research Service, U.S. Department of Agriculture. Counties were first divided according to the number of urban inhabitants into urbanized counties with 20,000 or more urban residents; less urbanized counties with 2,500 to 19,999 urban residents; and rural counties with fewer than 2,500 urban residents. Each category was then subdivided into adjacent counties near Metropolitan Statistical Areas (MSA's), and remote counties not adjacent to MSA's. Counties were considered adjacent when the county and MSA borders touched at more than one point, and 2 percent or more of the county labor force commuted to the central county of the MSA.

The physician supply in each county category was measured by the ratio of practitioners per 100,000 residents in 1981 and 1988 (1987 in the case of osteopaths). Changes in the physician supply over time were measured by the mean annual change in the ratio. Since the reporting date for physicians shifted from December 31 to January 1 in 1988, the 1981-88 period was actually 6 years and 1 day long.

some specialized services, many also spent part of their time providing primary care.

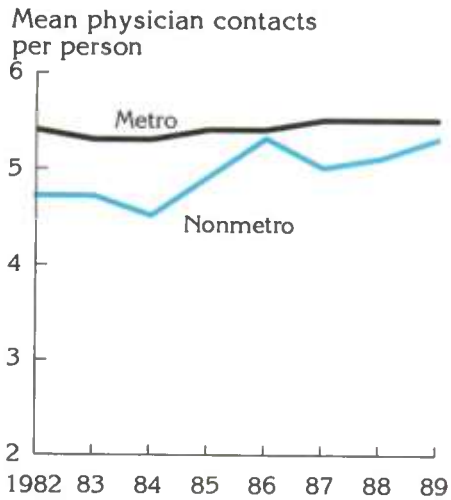
Osteopaths Accounted for Disproportionate Share of Physicians in Rural Remote Counties

Osteopaths, who hold D.O. ("Doctor of Osteopathy") rather than M.D. degrees, are trained in different medical schools than other physicians and were formerly subject to more restrictive licensing regulations. Most are engaged in primary care. Osteopaths represented 5 percent of the U.S. physician supply during the 1980's. The total number of osteopaths grew from 16,000 in 1981 to 22,000 in 1987, an increase of 36 percent. During the same period, the U.S. osteopath-population ratio rose from 7 per 100,000 persons to 9 per 100,000 (table 1). Nonmetro areas had fewer osteopaths than metro areas, but the difference was small.

Unlike other physicians, nonmetro osteopaths preferred to locate in rural remote counties (fig. 1). As a result, osteopaths accounted for a disproportionate share of the physicians in these areas (fig. 2). The role of osteopaths was even greater in eight States (Arizona, Florida, Michigan, Missouri, New Jersey, Ohio, Pennsylvania, and Texas), where licensing regulations historically favored the osteopathic profession. By 1988, more than a third of the physicians in rural remote counties in these States were osteopaths.

Figure 3
Average annual number of physician visits per person, 1982-89

Visits to physicians in nonmetro areas increased during the 1980's.



Town Size May Be Key Reason for Lagging Growth of Physician Supply in Rural Counties

The rapid growth of the U.S. physician supply during the 1980's benefited all nonmetro areas. By 1988, urbanized, less urbanized, and rural counties all had more physicians than in 1981. However, nonmetro physicians were less likely to settle in rural counties than in other areas. Osteopaths represented an important exception to this pattern, but it is unclear why they preferred to locate in rural remote counties.

A key reason for the slow growth of the physician supply in rural counties may have been the limited number of places large enough to support physicians. Only 17 percent of the population of rural counties lived in places with 1,000 or more inhabitants at the time of the 1980 census. The remainder of the population was dispersed in communities seemingly too small to support physicians, despite the increased willingness of practitioners to settle in small places as disclosed by the RAND studies. No information was available about the size of the places that actually gained physicians, since this study was conducted at the county level.

Rise in Physician Visits Suggests Improved Access to Health Care During 1980's

The continuing gap in the physician supply between metro and nonmetro areas does not necessarily mean that nonmetro residents had less access to physicians. Since many nonmetro residents traveled to cities to visit physicians, the average patient load per nonmetro physician was less than that implied by the physician-population ratio. Nonmetro physicians also work longer hours and see more patients than metro physicians, further reducing the differences in the supply of physician services.

Estimates of physician "contacts" by the National Health Interview Survey provide some evidence that the increasing number of physicians in nonmetro areas improved access to health care (see box, "The National Health Interview Survey"). Physician contacts were defined as visits or telephone consultations with physicians or persons working under the supervision of a physician. Nonmetro residents reported fewer physician contacts per year than metro residents during the 1980's (fig. 3). Unlike metro residents, however, nonmetro residents reported an increase in contacts over time. By the late 1980's, the average number of contacts was nearly the same in metro and nonmetro areas.

The upward trend in physician contacts in nonmetro areas suggests that access to health care improved as more physicians moved into rural communities. The narrowing difference between metro and nonmetro areas also implies that nonmetro residents had attained nearly the same access to care as metro residents by the late 1980's. However, the data on physician contacts do not take the health status of metro and nonmetro residents into account.

The National Health Interview Survey also reveals that nonmetro residents are more likely to report serious chronic diseases than metro residents, and more likely to assess their own health as poor. These differences suggest that nonmetro residents are in worse health than metro residents, and perhaps in greater need of medical care. If this is the case, the similar rate of physician contacts in metro and nonmetro areas means that nonmetro residents still have less adequate access to care than do metro residents.

For Additional Reading...

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